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Some Aspects of Organo-Therapy in its Relation to Veterinary Practice.*

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As you are all aware, the time at one's disposal does not permit of a very extensive paper, and I therefore propose to deal very briefly with many portions of the subject in the trust that those who follow will repair my many omissions.

The subject of Endocrinology is one that has received much attention during the last twenty years from scientific workers, and a very superficial knowledge of this work impresses one with the immense amount of work done upon the physiological side, the valuable clinical and therapeutical observations by medical men in their treatment of human beings, and the paucity or non-existence, in veterinary literature, of material appertaining to like conditions in animals.

Although much knowledge has been acquired, the subject is still confused by uncertainty and contradiction. The term " Internal Secretion " was formulated by Claude Bernard in 1855 ; he regarded glycogen as being an internal secretion of the liver. In 1889, Brown Sequard read a paper before the Biological Society of Paris ; then in his seventy-second year he claimed rejuvenescence as the result of injections of testicular extracts. Although this formed but a portion of his researches, he was subjected to ridicule, but the needed stimulus was given to this branch of physiology.

The term " Ductless Gland " was given to those organs providing an internal secretion, but, with advancing knowledge, it became obvious that many structures, possessing a duct, played a dual part, and as a comprehensive term Starling, on Hardy's suggestion, coined the word Hormone ; to the structures themselves the name Endocrines is applied. The hormones are not enzymes, they are readily destroyed by oxidation, fairly easily by boiling, and their action may be selective for a certain type of cell, as with the pituitary, general, affecting the metabolism of all cells, as with the thyroid, or the action may arise through the autonomic nervous system. The view is held that the older methods of guidance of bodily functions were effected by means of chemical differentiators, and that in the process of evolution these chemical methods have been brought under the control of the autonomic nervous system. It will be recalled that this system resolves itself into the sympathetic and parasympathetic divisions. The former comprises a chain of ganglia lying on either side of the vertebral column, and also the cervical and stellate ganglia. Fibres are sent by way of the spinal nerves and blood vessels to the various tissues of the body and its functions will be referred to in dealing with the suprarenal medulla, as this body elaborates adrenalin, the stimulant of sympathetic activity.

The parasympathetic fibres, most of which are associated with the vagus and to a lesser extent with the 3, 4, 7, 9, 11th cranial and the sacral nerves, supply, with a few exceptions, the same structures as the sympathetic. The sympathetic and parasympathetic systems are directly opposed in action, and so, where the one stimulates, the other retards. The older theory of antagonism between individual glands is now giving way to the conception of a delicate balance. The parasympathetic is regarded as being anabolic in character, conserving and storing energy, and with it are associated the parathyroid, thymus, suprarenal cortex, the cell islets of the pancreas, and possibly the anterior pituitary.

The sympathetic is katabolic in character, developing the energy stored by the parasympathetic group, and with it are associated the thyroid, suprarenal medulla and the posterior pituitary, and linked with it are the reproductive organs. Combined, they control the vital organs of the body, and, in Cannon's words, they muster the resources of the organism in such a way as to be of the greatest service to such organs as are essential for combat, flight or pursuit. They mobilise sugar into the blood to provide energy against the external foe, or the internal foe of bacterial invasion, as by pyrexia. In this group lies the preservation of the individual and the continuity of the species. The endocrine system plays an important part in instinctive behaviour and emotional life, as well as determining growth and evolution. It may, perhaps, follow that man, being more highly organised, and longer living, should suffer more from defects of this system than animals. I doubt very much whether many of the conditions found in the higher creation are reproduced in the lower.

Dr. Langdon Brown(1) has recently emphasised Dr. Cramer's work on the Katabolic Group, pointing out that the thyroids, adrenals and post-pituitary mobilise sugar into the blood stream and that with a normal carbohydrate metabolism hyperglycæmia does not occur, the excess of sugar being used at first in producing fever. In a recent paper, " The Endocrinology of Tuberculosis," (2) it is suggested that the function of the Katabolic Group is to resist acute infection and that of the Anabolic Group to counteract the prolonged overaction of the Katabolic Group in chronic infections. This overaction leads to a rapid loss of weight, general exhaustion and deficiency. Pathological changes arise in the endocrine glands.

Parathyroid hypofunction with dental stigmata and later tetanic convulsions are depicted in some cases—a clinical picture met with in canine practice.

Pineal.—Of the various specimens shown to-night, the pineal gland is one of the least important from our point of view. Projecting from the root of the third ventricle, it is thought by some to be the vestigial median eye of which evidence exists in certain of the Reptilia. Doubt exists

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as to the presence of an internal secretion. Larger in young animals, it degenerates in adult life, and it is thought to exercise a retarding effect on sexual and somatic development.

PITUITARY BODY.—Situated at the base of the brain and resting in the sella turcica, this is composed of two lobes. The anterior is formed in a hollow upgrowth from the buccal ectoderm, whereas the posterior portion arises as a hollow downgrowth from the floor of the third ventricle—it widens out at the base to form the posterior lobe. Slightly in front of this lobe lies the intra-glandular cleft. In the posterior lobe an iodine free colloid is present, which passes *via* the infundibulum into the third ventricle, and so into the cerebrospinal fluid. The *anterior lobe* appears to furnish a colloid which profoundly influences growth, development and nutrition. It is closely connected with skeletal and sexual changes, calcium metabolism, and during pregnancy it enlarges. Feeding experiments result in definite stimulation of growth, precocious sexual development with rapid onset of secondary sexual characters, and functional ability. Langdon Brown, quoting Crossley Meates(3), states that two grains of anterior lobe extract were given daily to an Irish wolfhound bitch pup. In a month the facial expression became heavy and the ears large, so as to resemble those of a bloodhound. The long bones were definitely larger and heavier than the bones of the rest of the litter. The most striking difference was the change in character, and at eight months she was more masculine and rougher than the dog pups. Hypertrophy in early life results in definite increase in the size of the long bones, and gigantism, whereas in later life, where overgrowth is not possible, acromegaly supervenes, which, briefly put, is a condition involving hypertrophy of those parts which are most used, such as the lower jaw, hands, feet and, also, there is excessive growth of hair on the body. As a result of underaction various types of infantilism have been described, and removal leads to retarded growth, obesity, and failure of sexual development. It is difficult to trace any parallel to these conditions as occurring in animals, but tumour formation has been recorded in connection with the pituitary(10) in animals, which gland is thought to be the controlling factor in hibernation.(11) When, however, we consider the *posterior lobe*, although we do not appear to recogniseany pathological condition,it yields in pituitrin one of the most useful of the endocrine preparations in veterinary practice. It probably consists of more than one substance, and its essential action lies in its power of increasing the power of contractility of unstriped muscle fibre and hence it influences the cardio vascular system, and virtually every organ of the body. The rate of the heart is slowed, but the contractions are rendered more forceable, blood pressure is raised. On carbohydrate metabolism, it plays an important part in antagonising the action of insulin, and preventing a fall in blood sugar ; it also facilitates the transport of fat to the liver, so preventing the obesity met with in hypopituitarism. It is a powerful diuretic and it is stated to produce a temporary increase in the milk flow. Both the pregnant and virgin uterus are stimulated, and pituitrin is most useful in dystokia, where a condition of uterine inertia exists, but where the presentation is normal. It is not desirable to employ it too early but to reserve it for those cases where muscular contractions are becoming exhausted. A case is recorded of its successful use in the elephant; it is extremely useful in the sow, dog and cat where size does not readily permit of manipulative surgical processes.

In metritis, it promotes contraction and so helps to drain the uterus and limit the spread of infection. It is indicated in uterine hæmorrhage, shock, and to restore intestinal tonus after certain surgical operations, and in paralysis of the bowels. Owing to its more prolonged action, it is of more value than adrenalin in intestinal, pulmonary and other forms of hæmorrhage.

PARATHYROID.—In man, there are four parathyroids, the upper pair lie on the posterior surface of the two thyroids, often partially embedded in the thyroid substance. The lower pair usually lie external to the lower posterior border of the thyroid. Variation in arrangement and numbers occurs in different species and uncapsulated portions may be embedded in thyroid tissue. Evidence has been produced to show that removal of the parathyroid leads to a marked reduction of the calcium content of the blood and nervous tissues, and an increased content in the urine and fæces ; also, that a few days after extirpation a condition of tetany supervenes. This is marked by painful, irregular, tonic contractions of various muscle groups lasting over periods of short duration or up to several hours. The distribution is usually bilateral and involuntary muscle may be involved. The symptoms are of nervous origin and it is known that excess of calcium depresses and a deficit increases the excitability of nervous tissue. Collip has isolated an active hormone from the parathyroids by which he was able to control experimentally-produced tetany in dogs. With its aid blood calcium can be raised and if it be raised to too high a percentage, vomition, diarrhœa, hematemesis, melæna and death follow.

It is of interest to note that diet is also a factor ; in dogs deprived of their parathyroids, meat feeding precipitates the onset of symptoms, but on a milk diet the dogs can be kept normal, and the attacks provoked at will by withholding the milk. The same holds true of giving Ca salts in other forms than milk calcium. Ca deficiency may also be seen in conditions other than experimental ; in bone diseases, in rickets, in gastric and other chronic ulcerations and in prolonged lactation there is a lowering of the Ca blood content. The subject is of interest since it has a bearing on many pathological conditions met with in clinical medicine. Noel Paton has pointed out that when the parathyroids are removed, guanidine and similar products accumulate in the blood and urine, and it has been shown that these may produce the symptoms shown in tetany. There is some evidence to show that this condition is related to blood calcium deficit.

THYROID.—The Ductless Gland of most interest to us from a pathological standpoint is the Thyroid. Accessory thyroid tissue is sometimes present in other parts of the neck. Lying in the meshes of the connective tissue network given off from the septa are the acini which contain the iodine-containing colloid thyroxin, which is held to be the hormone evolved by the thyroid gland. It has been shown to be related to tyrosin, and to consist of four atoms of iodine attached to two linked benzene

rings. It is regarded as the iodine reserve of the body and it stimulates growth and metabolism. It is formed in appreciable quantities only after birth, and it is supplied to the offspring in the milk. The thyroid undergoes physiological enlargement at puberty, marriage and pregnancy. When the iodine content falls below 0.1 per cent. of its dried weight, the thyroid begins to enlarge, and it has been said that the study of the thyroid begins and ends with iodine. Symptoms from interference are much more severe in carnivora than in herbivora. Atrophy or extirpation of the gland in early life in all animals results in cretinism or retardation of physical and mental development, a condition which responds to thyroid feeding. In later life, myxœdema supervenes, the chief signs of which are obesity, dryness and thickening of the skin, falling out of the hair, and slowing of mental and metabolic processes. The thyroid originally opened by the thyo glossal duct, through the foramen cæcum on to the back of the tongue; persistent remains of this duct produce cysts in the midline of the neck. Cysts in this position are not uncommon in dogs.

Simple Goitre.—A condition with which we are all familiar, and with a very widespread distribution may be regarded, I think, as a physiological hypertrophy due to iodine deficiency. It is said that injury—nervous, chemic or toxic—may bring about simple goitre. In human medicine, the incidence is more common in females, especially after puberty, a fact connected with the reproductive processes.

Cases have been recorded in many breeds of animals, but the dog appears to be the one most frequently involved. Isolated cases are more common, but whole litters of puppies may be affected; I am not aware of any special predisposition of the female sex. McCarrison(4) points out that animals kept in dirty cages develop goitre spontaneously, but kept under like conditions in clean cages, they avoid goitre, and it appears that, in some ways, the unhygienic conditions render the iodine of the food insufficient for the needs of the body. The majority of cases improve rapidly upon the administration of KI or syrupus ferri iodid, which I prefer, and also the local application of iodine, which can be absorbed through unbroken skin and influence thyroidal function. The administration of thyroid gland does not appear to be essential; it is possible that an occasional case may benefit. Goitre has been classified many times, and one of these sub-types, diffuse adenomatous goitre, I should like to discuss. Here there is a proliferation of the acinar epithelium, which becomes overactive; it may assume a papillary form of architecture with projections into the acini, and this type of pathology is distinctly associated with exophthalmic goitre. The specimen shown this evening from a twelve-months'-old bitch simulates that type, and a number of cases are met with from time to time in canine practice.

It is of interest to note that Dr. Graves(5), in a paper read in 1923, recorded true exophthalmic goitre in a Bull terrier pup, one of a litter all affected with goitre. The pathology of the section was confirmed by Sir Victor Horsley, who pronounced the tissue to be typical exophthalmic tissue.

The essential clinical features are the very marked enlargement of the thyroids, associated with a degree of bending or interference with the lumen of the trachea, and displacement and pressure on the various structures of the neck, more especially the veins. Nervousness and tachycardia are constant symptoms and the pulse may range up to 150. Cases occur in puppies of a few months old and in adult dogs. In one case, the condition was associated with convulsions from which the puppy died within twenty-four hours of being admitted. In another female puppy of ten weeks' old, there was marked stunting of growth, and an appearance of malnutrition as compared with the rest of the litter. One may speculate as to whether the cause of such conditions is a dysthyroidism, associated with an altered toxic thyroid secretion, and a hypo thyroidism, or whether the condition is a hyperthyroidism associated with excess of true thyroid hormone. Does thyroid enlargement denote cause or effect? It would be of interest to know the relationship between these conditions and exophthalmic goitre, a condition occasionally recorded in veterinary literature. Although exophthalmos is not common, one does meet with animals with bulging eyes, and with an easily visible band of sclerotic showing around the corneal rim and through widened palpebral fissures—one dog we are at present treating is showing this condition. His other symptoms are nervousness, tachycardia, pulse 150, tremor, high blood pressure; the thyroids are only slightly enlarged. An interesting feature is the marked decalcification of the bones of the face. Langdon Brown appears to regard this type of case in people as being due to a hyperthyroidism and differing only in degree from Grave's disease; moreover, he describes cases, incomplete forms of the disease, in which both ocular and thyroid symptoms are absent; amongst other causes, he emphasises focal infection and intestinal toxæmia. Treatment must depend on the clinical picture. Iodine, or ferri iodid, give good results up to a point, but it has been pointed out that when the thyroid becomes saturated with iodine, excess may produce harmful effects. Quinine hydrobromide has been very highly praised. Focal sepsis and intestinal toxæmia should be sought for and treated—thyroid extract is contra-indicated. Hypothyroidism is characterised by a general slowing of the metabolic processes, adiposity and a thickened, infiltrated, dry, rough skin, loss of hair or scanty brittle dry hair, and faulty dentition. Thryoiditis usually arises from trauma. Malignancy, associated with the thyroid, is not common, but a chronic discharging fistula yielding a purulent colloid material has been observed in association with epithelioma. Thyroid extract has been recommended in many of the non-parasitic skin diseases accompanied by loss of hair, in asthma, rheumatism, obesity, and as a tonic in lowered metabolism with accumulation in the system of toxic waste substances.

Adrenals.—The adrenals are composed of two portions —the cortex and medulla; in the higher vertebrates they form one whole, but, lower in the scale, they exist as distinct bodies.

On treatment with chromates, the cells of the medulla give a characteristic colour reaction which has been termed the chromaffin reaction and by this means chromaffin tissue has been detected in association with sympathetic

ganglia, along the course of the aorta, and its branches, and in various parts of the body. From the cortical portion no hormone has been isolated, although it is thought to be more essential to life than the medulla. The cortex appears to influence growth and development, more especially of the reproductive organs; if undeveloped, the sexual functions are in abeyance, whereas, in hypertrophy, sexual precocity is evident, or if in later life, the female tends to assume secondary male characters. Various theories have been put forward to explain the functions of the medulla. One, the tonus theory, suggests that the rate at which epinephrin is liberated into the blood stream is constant, and that this outflow serves to maintain arterial tension by rendering the neuro-muscular functions sensitive to sympathetic stimulation. To-day, Cannon's Emergency Theory is more widely held, and he has demonstrated that, under certain conditions, such as asphyxia, emotional excitement and pain, the sympathetic system, aided by a very marked increase in the outpouring of epinephrin will activate the resources of the individual in such as way as are absolutely essential for fight, flight and pursuit; moreover, it has been shown that epinephrin diminishes muscular fatigue and increases the rate of coagulation of the blood.

Takamine isolated epinephrin in 1901; it is but slightly soluble in water, but its salts are readily soluble, and it has since been prepared synthetically. It is rapidly oxidised, and destroyed by many chemical agents. From its action on the myo-neural functions of the sympathetic nervous system, it produces, in brief, the following effects. On blood vessels, vasoconstriction, and it is one of the most powerful of the hæmostatics. Locally, it is of service in congested mucous membranes, and in bleeding from the skin, nostrils and the various natural cavities. Injected subcutaneously, it slows the rate of absorption of various toxic anæsthetics, and renders the operations bloodless, but, if too concentrated will produce sloughing. It has been recommended for use in snake bites. Given per os, it is rapidly destroyed in the stomach, but it produces local vasoconstriction, and has been recommended in small doses in certain forms of vomition, and in large doses in various forms of poisoning, to prevent absorption and to give other agents time to act. Injected intravenously, its effects are fleeting, but very rapid in onset; on the heart, the rate and force of beat are increased. The bronchioles are dilated and adrenalin in small doses hypodermically is one of the best agents for cutting short the paroxysms of bronchial asthma. On the uterus, the action varies accordingly as the innervation varies in different animals, in pregnancy and in virginity. Peristalsis is inhibited, the various sphincters contracted, and the intestinal wall relaxed. Adrenalin should be avoided in the cardiac inhibition arising during the early stages of chloroform narcosis, as fatal fibrillation may occur, but in the later stages it is of the utmost service. Its use in concealed hæmorrhage is open to doubt. On sugar metabolism, epinephrin antagonises insulin, and causes hyperglycæmia and glycosuria. Adrenalin has been used in many conditions.—laminitis, surgical shock, parturient paresis, hæmaglobinuria, bovine red water, etc.

SUPRARENALS.—Of the diseases of the suprarenals, I have little to say; hyperfunction of the medulla has been associated with high blood pressure, arterio-sclerosis, interstitial nephritis, and excessive activity of the sympathetic systems (sympathicotonia), whereas hypofunction has been connected with Addison's disease, the symptoms of which are asthenia, low blood pressure, pigmentation of the skin and mucous membranes. The linea alba is especially the subject of pigmentation; the colour is first yellowish, shades of brown creep in and later very dark brown areas or bronzing occur. It is most commonly associated with tuberculosis of the adrenal bodies. It is held by some that Addison's disease is due to deficiency of the adrenal medulla; some say the cortex is also involved.

Hyperfunction of the cortex is associated with sexual precocity, excess of body hair, early sexual maturity, and a tendency on the part of the female to develop male sexual characters, whereas hypofunction and diminished sexual development go hand in hand.

GONADS.—Although the gonads are not ductless, there is little doubt that they elaborate internal secretions, which exert a very striking influence, both on the moulding of the individual and upon the endocrine system; conversely, there is little doubt that endocrine abnormality may profoundly modify the sexual characters. Lillie(6) reports a case in which the female characters of a twin calf were more or less completely suppressed and certain male structures developed as a result of anastomosis of the placental blood vessels with those of an associated male twin calf. This can only be explained by the influence of a soluble and diffusable hormone derived from the male, and carried to the female by the circulating blood. Mott's view is that the testicular hormone is active at an earlier stage than the ovarian, and he remarked that we can thus understand why castration, even in early life, cannot remove entirely the hormonic effect already impressed upon the individual. The view generally held is that the male hormone is elaborated in the cells of Leydig in the interstitial tissue. Biedl further assumes that there is a hermaphroditic groundwork present, and that the presence of a male or female hormone develops the sex characters, and that castration before puberty results not in a change to the opposite but to an undifferential type of organism. In Steinach's experiments on rats, castration prevented the development of secondary sexual characters, and desire for sexual intercourse, but when testicles were transplanted the immature seminal vesicles and genital organs developed and the males energetically sought the females and carried out the sexual act. His biological examination showed the complete atrophy of the spermatogenetic cells, and the survival of the interstitial cells, and one may note the same occurrence in ligature of the vas deferens. The interstitial cells proliferate and increase rapidly at puberty. Kenneth Walker says: "Those who are familiar with Steinach's experiments on aged rats must certainly be impressed by the results of vasoligation. Aged animals in a state of apathy and neglect showed that the operation of ligation increased activity, the quality of fur, alertness, increase in bodily weight, and a return of sexual vigour. It is true that after a period of regained health they lapsed into senile apathy, but in spite of this, the total length of life was greater than in the case of untied males. In human beings the results have been summarised; a few cases, striking results; in some cases improvement in general

health and vigour, and in many cases no benefit. Criticism has been levelled at Steinach's work, partly on the ground that there is no proof that the interstitial cells are the source of the testicular hormone.

More recently, Voronoff(7) has made use of grafts derived from the higher apes, and Nuttall has shown that the blood relationship is very close between the higher anthropoid apes and man. Voronoff claims valuable results in man, rams and other animals, and it would appear that in man improvement of general health, mental and muscular vigour and the growth of hair, are the most striking results.

Langdon Brown states that he has used human testicles from cases of ectopia testis, and he thinks Voronoff's use of a serous cavity, such as the tunica vaginalis, best for implantation. He further believes that the vascularisation and survival of the graft is an actual fact, but that a steady atrophy of the engrafted tissue occurs and that the actual life of the transplant is shorter than that claimed by Voronoff, and he places the limit at eighteen months; he points out that the benefit may not cease with complete atrophy.

Extirpation of the ovary results in failure of development or atrophy of the uterus; if the ovary is grafted into a castrated guinea-pig female characters are assumed. The changes occurring at puberty have been ascribed to a hormone secreted by the interstitial cells, but nowadays the conception is growing that the source of the hormone is the graafian follicle, and it is possible that a continuous conversion of primordial follicles into immature graafian follicles provides this hormone. Allen and Doisy have isolated an ovarian hormone which has produced the œstral cycle and the growth of the mammary gland in spayed animals and, further, they state that this injection will hasten sexual maturity in young animals. Following the rupture of the follicle, and the discharge of the ovum, the follicle collapses, there is an ingrowing of the surrounding tissues, and the corpus luteum appears. Its cells are yellowish owing to the presence of a fatty pigment, lutein. The corpus luteum undergoes fibrous changes, and disappears within two months, but if pregnancy occurs it enlarges and does not disappear until the birth of the fœtus.

The corpus luteum is definitely a structure of internal secretion. It inhibits the development of further follicles, sensitises the endometrium for the reception of the ovum, and is also said to stimulate the development of mammary tissue. If it is destroyed abortion occurs. In 1923, Dixon showed that injection of ovarian extract produced a definite outpouring of pituitrin into the cerebro-spinal fluid, and it has since been shown that corpus luteum extract inhibits this action, and that inhibition is far more marked in pregnancy. Before pregnancy, this inhibitory action of the corpus luteum passes off, pituitrin passes into the blood stream, and excites the uterus to contract, an effect absent in the virgin uterus. Pituitrin possibly has some effect on the uterus after parturition, helping to produce involution, and it also influences lactation. Corpus luteum is said to check pathologically prolonged lactation in women, but this condition appears to be due to some pituitary irregularity and the statement might be debated in its bearing on lactation in cows, and also the phantom pregnancies of the smaller animals. Its retarding action on ovulation might possibly be turned to account in controlling œstral periods, and in the prevention of habitual abortion. Although corpus luteum stimulates mammary growth, it has been shown that a fœtal extract injected into a virgin animal has the same effect.

Frankl grafted placental material of mice within about ten days of term into mice in the same stage of pregnancy and he found that these mice on parturition secreted colostrum over such prolonged periods that their offspring died of starvation.

There is some evidence to show that the feeding of placental extract results in an increase in the rate of growth in the offspring, and an increased secretion of milk, and it is interesting to note that animals eat their placentas as do certain races in Asia and Brazil. A case is recorded of two sisters structurally united throughout life; the nervous system was independent in either case, the circulatory system was common. Following pregnancy and the birth of a child to one, there was lactation in the breasts of both, pointing to a hormonic control.

It will not be denied that sterility in cattle is the cause of very great financial loss to the farming community, and it is interesting to note that there have recently been creeping into veterinary literature some very interesting papers bearing on the subject.

Deubler and Barnes,(8) writing on sterility of cattle in 1922, record that with commercial ovarian extract they were unsuccessful, but that by feeding fresh ovarian tissue from healthy sows they were able to induce the onset of œstrum in cows in which that function was in abeyance. The method of administration was to give two ovaries obtained from sows; these ovaries were finely chopped and put into a capsule and given per os.

Later, a sterile extract was obtained and injected subcutaneously.

Dolder(9) has more recently published an article giving details of twenty-one tests upon cows suffering from ovarian dysfunction. He used an extract obtained from the ovaries of cows and sows, injected subcutaneously; he found that both preparations restored the ovarian function but that the number of injections ranged from one to six given at intervals of five—fifteen days.

In cystic ovaries, the injections lead to rapid development of the cysts, and of the twenty-one cows so treated nineteen developed œstrum and sixteen conceived.

I have only spoken of certain of the endocrine glands in an uniglandular sense and I would conclude by pointing out that a mass of evidence is slowly being accumulated which goes to prove that an inter-relationship exists between various groups of the glands, which act in unison; around this knowledge a system of multi-glandular therapy is being formulated but it is, as yet, too soon to judge of its value.

I desire to acknowledge my indebtedness to the Armour Co. for the gift of the glandular preparations and to the following works relating to the subject:—

"The Endocrines in General Medicine" (W. Langdon Brown), 1927.

"Organo-therapy in General Practice" (G. W. Carnrick and Co.), for the valuable references and bibliography.

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Slaughter of Animals in Scotland.

THE HUMANE KILLER.

In the House of Commons on 17th February, Brig.-Gen. Charteris moved the second reading of the Slaughter of Animals (Scotland) Bill, which he said last year passed through Committee, but was "slaughtered" by the lack of Parliamentary time. The Bill differed in some respects from last year's measure. The alterations had somewhat restricted its scope, and were the result of very careful consideration in the Scottish Committee. Almost all the objections then raised had been met. The Bill laid it down that in any slaughter yard, and as regarded all animals except swine, animals should only be slaughtered by a man fully trained and fully licensed, and with the use of a mechanical instrument instead of the ordinary pole-axe. The penalty for infringement was a fine of up to £10 for the first offence and £25 for the second or subsequent offences, added to or in substitution of imprisonment for three months. Licences were to be granted by local authorities at a fee of 5s. a licence, and a renewal fee of 1s. Power was given to a police constable or other authorised person to inspect slaughter houses. Members of the Jewish religion were exempted from the operations of the Bill.

On the general principle of the avoidance of unnecessary cruelty in the slaughter of animals, the whole House would be in agreement. Experiments carried out in the Metropolitan area recently showed that in the case of 400 animals killed by the pole-axe, 655 blows were required, or 1·6 blows per animal. In the case of 190 animals killed by a mechanical slaughterer, only 194 shots, or less than 1·02 shots per animal, were required. In 1925, 1,250 animals killed by the pole-axe needed 2,750 blows, and the same number killed by a mechanical slaughterer needed only 1,254 shots. That finally disposed of any claim that the mechanical slaughterer was imperfect or that there was any large measure of error in its operation. The Bill was desired by the whole of Scotland, the opposition to it having practically and entirely disappeared.

Lieut.-Col. Moore seconded. The Bill, he said, would remove from Scotland the stigma of inhumanity and would give a lead to England. Swine were excluded from the Bill because the view had been expressed that their flesh was affected by the humane killer, but he hoped they would be included at a later date.

Mr. Mackinder said he had been asked to oppose the Bill. There were a large number of men in Scotland who contracted to kill and dress animals, and as contractors they were outside the law of compensation. It was hardly fair that men should be compelled to use a weapon which might injure or even kill them, whilst they were denied compensation.

Sir J. Gilmour, Secretary for Scotland, said he thought it was agreed on all sides of the House that an advance ought to be made in the method of slaughtering animals for human use in the direction of entailing less suffering, and the problems which remained to be considered in the clauses of the Bill were those which could be dealt with in Committee. He asked the House to support the measure and send it to the Scottish Grand Committee.

The second reading of the Bill was agreed to by 118 votes to 11—majority 107.

Foot-and-Mouth Disease in Wexford.

The Ministry of Agriculture and Fisheries received information from the Irish Free State Government on Saturday last, that foot-and-mouth disease had been confirmed at a farm near Wexford, and that that Government had, as a precautionary measure, applied restrictions on the movement of stock within the whole county of Wexford, and in addition had stopped markets and fairs in the counties adjoining. In view of the extensive trade in animals from Ireland to Great Britain, and the necessity of safeguarding the livestock of this country from the risk of infection by animals brought from Ireland, the Ministry made an Order prohibiting entirely the landing of animals brought from any part of Ireland until further notice.

Arrangements were also set on foot for tracing to their destinations in Great Britain all animals which had been imported from Ireland during the week. In respect of any such animals remaining alive, local authorities were asked to arrange for the service of notices on the owners or persons in charge prohibiting movement of the animals and any other animals with which they have come in contact for a period of 21 days from the date of arrival, and also to arrange for veterinary inspection.

Any stockowners in Great Britain who had in their possession animals recently landed from Ireland were warned of the importance of securing their immediate isolation, and asked to notify the presence of such stock to the local authority of their district, and to observe closely the condition of health of the animals, reporting to the nearest police officer any symptoms of the mouth or feet which might suggest a suspicion of foot-and-mouth disease. Reporting of such suspicious cases is a duty imposed by law, neglect of which renders an owner liable to heavy penalties.

ANXIETY IN IRELAND.

The Times, Dublin correspondent telegraphed:

"An outbreak of foot-and-mouth disease has been detected among beasts on premises near the town of Wexford. The animals, and any that have been in contact with them, are being slaughtered, and the Free State Department of Lands and Agriculture has prohibited until further notice any movement of cattle, sheep, goats and swine into, out of, or along, any public road in the administrative County of Wexford, including all urban and rural districts in the county. A further Order prohibits the holding of markets, fairs and sales of cattle, sheep and swine in the counties of Wicklow, Carlow, Kilkenny and Waterford.

"It is announced that the shipment of live stock from all Irish ports is suspended until the British authorities have made such order respecting the landing of Irish animals in Great Britain as they may think necessary to meet the particular circumstances of the outbreak.

"In recent years, owing to the vigilance of inspectors in the Free State and Northern Ireland, and the strictness with which regulations have been enforced, the whole of Ireland has been kept immune from infection. The greatest anxiety, therefore, has been excited by the Wexford outbreak. The stoppage of cattle exports even for a week must entail serious losses to the whole countryside."

[An Order modifying the Embargo has since been made.—Ed.]

The Shire Horse Society.

A Notable Record of Work.

"The Shire Horse Society, which holds its 49th annual show in the Royal Agricultural Hall, Islington, to-morrow and on the two following days, is a conspicuous example of the numerous breed societies that are nearing the half-century mark of efficient service in directing the breeding of farm live stock on sound pedigree lines," writes the Agricultural correspondent of *The Times* in the issue of Monday last. "Instituted in the summer of 1878, the Shire Horse Society is about to enter its jubilee year, and it may be presumed that this point in its successful history will be celebrated in a fitting manner. This and other societies inaugurated in the last quarter of last century have the advantage over the few that go back to an earlier date that the period of their activity is covered by the memories of members still living and clear enough to enable a trustworthy survey to be made of the work accomplished for the improvement of breeds and the benefit of their supporters.

"The premier cart horse of England, in common with other draught varieties, has encountered varying fortune since his breed register was established nearly 50 years ago. The Shire was a breed of importance when Mr. Frederic Street read his inspiring paper on its merits at the Farmers' Club in 1878, but whereas there is now one standard for all parts of the country, in those days there were varying types and strains characteristic of the different districts in which the work of improvement had been begun and conducted in such a manner as was practicable in the absence of a properly authenticated stud book. The Shires of the Fens were distinct from the Shires of Derbyshire, and other localities had each their particular type of farm horse, the whole related in blood, but forming a collection more impressive on account of its comprehensiveness than of its consolidated and harmonised excellence. The exhibits at the early shows of the society were notable chiefly for the insight they gave into the wealth of England in draught horses, just as any of the representative shows of to-day provide opportunities for examining the rich diversity of our registered breeds. Lovers of the heavy horses that used to rivet their attention when visiting the different counties and districts perceived in the several types suitable material from which to evolve the ideal draught animal. They saw also that the market for draught horses was destined to expand and improve with wise cultivation of the right class of horse, and from this discerning survey of the position in the late 'seventies of last century there has arisen the famous breed that will be paraded at Islington this week.

Motors and Draught Horses.

"Modern mechanical invention has not left the Shire, great animal as he is, unaffected. For a time he resisted the aggression of the motor lorry with encouraging success, but circumstances conduced to the disadvantage of the old favourite, and in the years immediately after the war the outlook for horse power was extremely discouraging. The machine had its innings and went ahead rapidly, but it became evident with increasing experience that the day of the draught horse had not yet passed, and from the time that the economic value of horse power was rediscovered, the market for the best class of gelding has continued to improve, and to-day presents a quite pleasing complexion. The horse has not disappeared from the roads and streets, and from all accounts is in no immediate danger of losing his place on either. On the contrary, it seems probable that he will recover much of the popularity he had to concede temporarily to the motor lorry.

"The changes of recent years however, have affected the position of heavy horse-breeding severely. It is believed that the demand for the best type of work horse will continue and induce generous terms to the breeder, but it is to be feared that the breeding of Shire horses, or any other of the kind, will not easily regain much of the exceptional prosperity that distinguished it two or three decades ago. But if the former measure of success cannot be restored, it is fitting that present-day owners and users of heavy horses should recognise the benefits they owe to the great breed improvers of the past. The list of such landowners and farmers is too long to reproduce; it was one of the chief ambitions of the last two decades of the 19th century to win distinction in the breeding and exhibiting of Shire horses. The result of this laudable desire to excel in the production of draught horses is noticeable in the merit of the horses and the value of the markets of the present time.

Work of Pioneers.

"The pioneer breeders, and those who rallied to their support in increasing numbers and enthusiasm, not only aimed at consolidating the different types into one approved standard, but, above all, they concentrated upon the eradication of diseases or defects of a hereditary nature. Excessive stringency was enforced with this latter end in view, and when regard is had to the heavy losses incurred in striving for this result, it will be understood that the owners of to-day are greatly indebted to the efforts of their predecessors of 20, 30, or more years ago. The fine, powerful Shire horses that will be seen at Islington to-morrow, and that are open to inspection any day on the streets of London and other great cities, reflect definitely to the trained eye the value of the work that was done for the breed through the society in its early years.

"There are names and individuals prominently associated with the Shire Horse Society in its jubilee year that were intimately identified with it in its infancy. It is appropriate that the president for the jubilee year should be Sir Walter Gilbey, as his father, the first Sir Walter, was active in forming the society and in guiding it through its initial stages into the robust and influential institution it soon became. Other members of the council, such as Mr. A. H. Clark and Mr. F. W. Griffin, both past presidents, have an active association with the society, and the show from an early period, and are among those who are able to survey the progress effected in the improvement of the breed in the time, and through the efforts, of the society. The president for the year is Mrs. Stanton, Snelston Hall, Ashbourne, who, herself the owner of one of the best studs of the time, has been especially energetic during her year of office in advancing the welfare of the breed and the society. Mrs. Stanton, the first woman president of the society, will hand over the reins of office to her successor after a year of work and devotion to the interests of the Shire breed that testifies to the marked efficiency with which she has maintained the traditions of the office. It will be noted that in the year of Mrs. Stanton's presidency there have been two important developments. One is the institution of produce classes at the London show, and the other the provision of classes for Shire horses at the Aberdeen show of the Highland and Agricultural Society in July next."

The Veterinary Record.
25th February, 1928.

VETERINARY ENDOCRINOLOGY.

Elsewhere in this issue will be found Professor A. R. Smythe's excellent paper upon Organo-therapy, which was delivered recently before the Central Veterinary Society. It is a subject which is slowly but very surely gaining in importance to the veterinarian, for not only are glandular products increasingly prescribed by the general practitioner, but Professor Smythe's thesis is no less than the fourth on the same subject to be presented to the profession within the last five consecutive years.

We live in an age of rapid scientific advancement, and the practitioner who would keep abreast of the times must of necessity be an ardent reader of medical and veterinary literature with a propensity for absorbing new facts and the will to act upon them.

There is probably no branch of therapeutics which has made more progress in recent years than that of organo-therapy, the introduction of which is one of the greatest achievements of modern medicine. The treatment of disease by the administration of animal organs or their extracts was practised in a crude way as far back as the year 600 B.C., when testicular extract is said to have been used for the cure of obesity and impotence.

For the next 2,200 years practically no advance was made until, in the 18th century, it was discovered by Holler that the thyroid gland excreted a fluid into the blood circulation. Later it was ascertained that there was a definite association between this secretion and the disease known as myxœdema. Attention was drawn to the fundamental position of the ductless glands by Berthold in 1849, which was followed some five years later by an important amplification by Claude Bernard. About 1896 Brown Sequard published his experiences with testicular extract and seems to have been the means of stimulating a wave of enthusiasm (concerning organo-therapy) hitherto unknown.

The chemical isolation of the first endocrinous active principle occurred in 1901, when Takamine discovered the hormone of the suprarenal gland. Thenceforth these endocrine or ductless glands acquired a prominence in medicine which was, as yet, wholly unmerited in view of the sparsity of our knowledge concerning their functional activities. Treatment which involved the use of animal substances was indeed nothing short of empiricism, but as time advanced and research unravelled Nature's mysteries, it became increasingly apparent that empiricism had given place to rationalism.

During the last thirty years a great deal of valuable work has been accomplished and has put gland therapy upon such a sound basis that, to-day, the most sceptical reader is obliged to admit the practical value of such organic products as suprarenalin, pituitary extract, thyroid extract and insulin.

Every comparatively-new treatment runs the risk of becoming discredited, because there seems an ever-present tendency in some quarters to exaggerate the beneficial results to be obtained from it; and when these do not in all cases materialise, there sets in a wave of condemnation which might conceivably involve a set back of even twenty years in the development of an otherwise promising advance. It is well, therefore, that we should proceed with extreme caution in order to avoid the creation of expectations which it might be impossible to fulfil. It may, however, be asserted with confidence that in those cases of disease which are dependent for their origin upon hyper- or hypo-secretion of a particular gland, or upon an otherwise deranged hormone balance, then the scientific application of gland therapy will prove wonderfully effective. It will be found, usually, that the most incredulous people are those who have never attempted by personal endeavour to verify or controvert the many eulogistic claims made for hormone therapy.

Organo-therapy, like actino-therapy, or any other method of treatment, is not a cure-all; the case must be intelligently studied and the therapeutic measures adopted must be rational in their selection and application. The successful results achieved in the laboratory have usually been confirmed in the field and no veterinarian can afford to ignore the therapeutic advantages which modern scientific investigation offers, and every practitioner who would wish to be thoroughly *au fait* with all branches of medicine must of necessity include treatment by hormones among his routine methods of practice.

Professor Smythe mentioned the paucity or non-existence in veterinary literature of material appertaining to treatment by glandular products. It is within our knowledge that a very complete treatise on this subject, comprising over one hundred pages and written by a veterinary surgeon for the veterinary profession, is about to go to press. Its appearance should be welcomed by our members, as it doubtless will serve still further to elucidate some of the problems concerning actions and dosages, and it should stimulate the study and practise of gland therapy.

Glasgow Veterinary College.

APPEAL TO OLD GRADUATES.

The Governors of the Glasgow Veterinary College appeal to the old graduates in their hour of need. The Government Grant has been stopped, but we can carry on if we get support.

Surely the College founded by the late Prof. McCall will not be allowed to go to the wall!

Will you help by even the smallest of subscriptions? You can also help by taking collection cards.

The following graduates have started the ball a-rolling:—

	£	s.	d.
A. Pottie, Nairn	1	1	0
John Spruell, Manchester	1	1	0
Robt. Ward, Manchester	1	1	0
C. A. McGaughey, Manchester ...	1	0	0
Thos. Johnson, Doncaster	3	0	0
Hugh Begg, jun., Strathaven ...	3	3	0
S. G. Abbott, Glasgow	1	1	0
West of Scotland Division, N.V.M.A.	10	0	0

WILL YOU KEEP IT GOING?

CLINICAL AND CASE REPORTS.

Abnormalities in a Lamb.

By J. H. Lloyd, M.Sc. (Birm.), F.Z.S.
Zoological Department, University College, Cardiff.

Some months ago I received from a farm situated at Caerphilly, near Cardiff, an abnormal lamb to which the mother had failed to give birth. Subsequent to the death of the ewe the lamb was removed from the uterus. I have recently been able to examine the animal in fair detail and desire to note here the chief abnormalities seen.

The cranial region of the head was very broad and bore two ears in the normal position. The facial region was double, each face pointing obliquely outwards. There were four eyes, two to each face; all normal. The right mouth was normal with two milk incisors protruding through the gum of the lower jaw. Nostrils normal. The left mouth had a normal lower jaw but the teeth had not pierced the gum. The upper jaw was incomplete anteriorly; the right anterior portion of the hard palate was undeveloped, and the pad on the upper jaw was absent. The left nostril was normal but the right nostril had not closed.

The dorsal surface of the cranium was covered only by a delicate red membrane.

Externally, the neck and thorax were normal, but large. A pair of fore-limbs was present.

A short distance behind the thorax the animal again divided and there were two well formed, normal sized abdominal regions, each possessing a pair of hind limbs, a tail, a scrotum, a penis and a perforate anus.

The animal was nourished *in utero* through a single umbilical cord.

The internal anatomy exhibited many points of interest. In the alimentary canal the stomach was found to consist of six chambers. The œsophagus opened to a small sac with a well developed lumen, lined by papillate mucous membrane, as in a normal ruminant. To right and left of this and connected to it, were two well developed "chambers," which were solid. Of the remaining three chambers, two were in direct communication with the œsophagus and the third was solid, and was given off from the dorsal surface of one of them. One of these chambers was lined by papillate mucous membrane and the other had its membrane thrown into the longitudinal folds typical of the abomasum.

The small intestine was single for a great portion of its length and then bifurcated to send one branch to each large intestine. Each branch at its junction with the large intestine gave off a short vermiform appendix.

The heart showed no external signs of division of the auricle, but internally a very incomplete septum was discovered, separating right and left sides.

There were two dorsal aortæ, one supplying each abdomen. The left aorta was given off from the left ventricle in the normal manner. The right aorta was given off from the right of the pulmonary arch just before it bifurcated.

A persistent ductus arteriosus was present, joining the pulmonary arteries to the left dorsal aorta.

There were two postcaval veins, one returning blood from each abdomen, which opened into the dorsal surface of the auricle.

An examination of the urinogenital system showed that there was only one kidney in each abdomen, the right kidney being present in the right abdomen and the left kidney in the left abdomen.

Four testes were present, two to each abdomen. In the right abdomen the right testis had descended and lay near the inguinal canal, whilst the left testis was still attached to the dorsal body wall of the abdomen. In the left abdomen the position was reversed, the left testis only having descended.

The cranium was bifurcated anteriorly, where it ran down the facial regions, but the posterior portion was single.

On removing the covering membrane from the dorsal surface of the cranium, I found that the brain had been damaged posteriorly, so that it was not possible accurately to make out its structure. Anteriorly there were present on each side a pair of cerebral hemispheres. Posteriorly there was apparently a single common cerebellum. The brain and brain cavity were both ridiculously small in proportion to the size of the animal. There was a single foramen magnum.

The most interesting skeletal features, apart from the head, were to be seen in the ribs and vertebral columns. The column as far back as the fifth rib on the left side seemed to be formed of two fused columns and in ventral view appeared as a single broad plate. At the level of the fifth rib the fused column divided into two distinct columns, which ran closely side by side until after leaving the thorax, when they diverged at an angle of 60°, one running down each abdomen.

The diaphragm did not run transversely in one place between thorax and abdomen, but ran at different levels on each side of the animal; the portion of the diaphragm on the right side lying in a parallel plane, but about an inch anterior to the portion on the left side. This fact was correlated with a difference in the number of ribs.

There were thirteen ribs, closely compressed together anteriorly, on the right side of the thorax and fourteen ribs on the left side. These ribs supported the walls of the chest. In addition, it was noted that, after the vertebral column had bifurcated, fourteen ribs arose from the left side of the right column. Six of these ribs were curved inwards in an attempt to complete the "thorax" of the right side, whilst the eight posterior ribs curved outwards to complete the "thorax" of the left side.

In addition to their inward or outward curve, all these ribs ran backward in such a manner as to lie entirely embedded in the dorsal musculature of the body wall, which protruded ventrally into the abdomen as a consequence. Their free ends, therefore, were posterior to the diaphragm and had no connection with the sternum.

There were no ribs arising from the right side of the left vertebral column.

In addition to the chief abnormalities described above, there were numerous small details, *e.g.*, in the smaller blood vessels, which were correlated with the facts here noted.

It seems fairly safe to assume that this specimen originated by the partial splitting of a segmenting fertilised

ovum, which caused complete duplication of some parts and modification of others. Presumably, if the split had been complete identical male twins would have resulted.

A Case of Paralysis of the Hind Limbs in a Cat.

By Major J. G. E. GALLIE, M.R.C.V.S., Bath.

The patient was a very valuable male Blue Chinchilla cat, about nine months old. It had been suffering from paralysis of the hind limbs for some months. The cause was unknown and I was told that the paralysis was gradually getting worse. The animal was in good condition and took its food more or less readily. The only symptom, apart from the paralysis, was that the coat was dull and patchy. Paralysis was such that the cat had very little control of its hind limbs, dragging them when walking and falling when attempting to turn. Had the animal not been valuable, I should have had no hesitation in advising its destruction.

TREATMENT.

27th July, 1927.—Mixed gland liquor, containing in each fluid dram—thyroid, gr. $\frac{1}{10}$; pituitary W.G., gr. $\frac{1}{20}$; ovarian, gr. $\frac{1}{5}$; orchitic, gr. $\frac{1}{5}$. Dose, one dram twice a day before food. In addition to the above, tablets containing mag. sulph., grs. v.; ac. arsenios, gr. $\frac{1}{100}$. Dose, one tablet three times a day. Diet consisted of raw meat, milk, whole egg, virol and milk, wholemeal bread, etc.

After fourteen days' treatment there was a marked improvement in the paralysis, the cat being able to walk with a sort of "string halt" action. He was also much improved in spirits and his coat was in better condition.

10th September, 1927.—Treatment by ultra-violet radiation was begun. The apparatus I use is a Mercury Vapour (Standard model) Artificial Alpine Sun Lamp. I found it nearly impossible to bandage the animal's eyes, and to counteract this difficulty I cut off the foot and part of the leg of a woollen stocking, doubled the leg over the foot and slipped it on to his head like a bag. I found this answered perfectly and the cat did not object in the slightest.

Duration of Exposure:—

1st day.—Dorsally, 15 minutes at 20 inches, continually combing up the fur; Ventrally, 10 minutes at 20 inches.

14th September.—Dorsally, 15 minutes at 15 inches; Ventrally, 10 minutes at 15 inches.

18th *September*.—Dorsally, 20 minutes at 15 inches; Ventrally, 15 minutes at 15 inches.

The treatment was then discontinued as the cat was so much better that the owner wished to show him. This was done and no one noticed anything wrong except that his coat was not good. I did not see the cat again until 21st October, when he was brought in as the owner thought that more ultra-violet radiation might help his coat. There were then no symptoms of paralysis, in fact he jumped off my table and fled up some stairs. Since then he has been shown several times and has done very well. I have not seen him since, but I am told that he has now grown a wonderful coat and bids fair to become a very popular sire.

REPORT.

[**The Annual Report of the Surgeon General U.S. Army, 1927.** United States Printing Office, Washington, 1927. 60 cents per copy.]

The U.S. Army Veterinary Corps being one of the units of the Medical Department of the U.S. Army, it is in the above report that we must look for news of our American Service colleagues.

We find that the Veterinary Corps comprises 126 officers and 608 men. The latter are allotted to the Veterinary Corps from the Medical personnel.

The average number of army animals is 41,232.

The Corps undertakes the inspection, etc., of all animal products destined for the food of the troops, and so use is made of the men who are best fitted for this duty.

The Corps runs a very popular monthly *Bulletin* as a supplement to the *Medical Bulletin*. In it matters of professional and general interest are discussed.

As regards equipment, the solution of the problem of a satisfactory ambulance is still unsolved, as in all other armies. Officers and men of the Corps have the advantage of attending specialist courses in various subjects. The officers also attend other army schools and courses, including Command and General Staff schools.

The Veterinary Laboratory Service is maintained as part of the Medical School and is kept busy in routine examinations and the preparation of biological products. A veterinary officer has been attached to the Medical Research Board in Manila and has done considerable work on tropical diseases.

Much work has been done under the headings of Meat and Dairy Hygiene and Forage Inspection.

Breeding and Purchasing Boards have veterinary members.

At the breeding depôts a hæmolytic streptococcus has been stated to be the cause of abortion, and the vaccine produced by the veterinary laboratory has proved strikingly efficacious.

The shortage of adequate permanent veterinary hospitals is troublesome and the medical department recognised this by setting aside a sum of money to rectify it.

Influenza and tinea are the commonest diseases in horse; in mules, thrush and diseases of the feet.

Canker is "a serious and growing menace," and so far research has supplied no adequate preventative or cure.

Glanders shows a slight increase, but there is prospect of eliminating it altogether. Fifteen cases were reported.

Strangles is declining in frequency, and epizootic lymphangitis is only met with in the Philippines; the mortality from this disease is low, but owing to its chronic nature the days off duty are many, *i.e.*, 74·67.

The Americans evidently believe in being ready for emergencies, if the reserve of the Corps can be taken as a standard. The Veterinary Reserve of Officers has increased from 93 in 1919 to 1,055 in 1927. This increase is greater than that of any other branch of the Medical Department and is in striking contrast to the policy at home as regards our Territorial Veterinary Units.

Breeding Farm Animals—Some Scientific Aspects.

DR. CREW'S ADDRESS TO THE CANADIAN FARMERS.

With the above as his subject, Dr. F. A. E. Crew, Director of the Animal Breeding Research Department of the University of Edinburgh (an Honorary Member of the N.V.M.A.), addressed the Canadian farmers on a marketing tour of the United Kingdom in the North British Station Hotel, Edinburgh, on 14th February.

In his task of securing breed improvement, Dr. Crew said, the breeder sought to control the environment of his stock and the forces of heredity and reproduction. The modern breeds were made by practical men who were in no sense guided in their methods by scientific laws; but it could be shown that their success was due to the fact that the methods they adopted were essentially in accord with scientific principles which were later disclosed.

The initial stages in the improvement of each breed had been the collection in as small a group as possible of as many of the characters of the ideal as were exhibited by the best individuals of the local type. The breeder had never possessed the power to control the production of hereditary characters; but he had the power of creating any combination of such heritable characters as already existed separately, and of manipulating the environment through husbandry so that these characters became more fully expressed.

Though the process of selection had never yet been carried to the point of complete and final success, it had played an an all-important rôle in all instances of breed improvement.

MASS SELECTION.

The simplest form of selection for breeding purposes was that which was termed "mass" selection, which had given widely different results. A satisfactory explanation had been given within the last twenty years of the manner in which mass selection accomplished its aims, or how it was that in certain instances it failed to do so.

It had been shown quite conclusively that mass selection was only followed by a movement in the desired direction when applied to a population or to a stock that was heterozygous for many of its characters, and when the characters for which selection was being practised were hereditary and were inherited in a straightforward fashion, not being conditioned in their expression to any marked extent by the conditions of nurture.

When complete homozygosity had been attained, further selection was unavailing. It was for this reason that mass selection was relatively ineffectual in changing the breed characters of the well established breeds of the domestic animals. Appearance alone was not a reliable guide to breeding ability. This was a lesson quickly learned. The acid test of the worth of the sire and of the dam was that it should beget offspring certainly not less valuable, and preferably more valuable, than itself.

PEDIGREE.

Pedigree, when rationally used, formed a very reliable aid to the breeder in his work of selection, but its importance commonly was over-emphasised. Individual merit was a safer guide than pedigree, but the two in conjunction were better than either alone. Commonly, far too much importance was paid to more remote ancestors and to descent in the direct female line to some particular "foundation female." There was no biological justification for such practices as these. The real test of breeding worth was the progeny test. The father was judged not by his appearance and performance, but by the attainments of his son.

The progeny test was applied very readily to males because of the greater number of offspring which might be obtained from a single male. To compare the merits of different sires in the case of the bacon pig, it was necessary to rear under carefully controlled conditions groups of four offspring of each sire and finally to convert them into bacon. The best sire was he whose offspring were the best bacon.

MATING.

All the systems of mating could be grouped under the two headings of inbreeding and outbreeding, these differing one from the other only in the degree of relationship of the individuals concerned.

The history of modern breeds of domesticated stock showed plainly that during their formative periods some degree of narrow breeding was ever practised, and it would seem, indeed, to be an essential to the attainment of outstanding success in breeding. It was equally true, however, that benefit did not always follow the practice. Even though facts varied, there had grown up amongst students of heredity, from controlled experimentation and through scientific analysis, a considerable degree of unanimity concerning the principles involved, and a general interpretation had now been promulgated which explained the conflicting results in scientific terms.

Inbreeding had but one demonstrable effect upon the stock subjected to its action, and this was the isolation of homozygous types. The average specimen of the domesticated animals exhibited a great multitude of characters, and corresponding to these characters there were in the hereditary constitution of the individual factors which might be present in the simplex or in the duplex state. It could be stated confidently that no individual was duplex for all the characters which it exhibited.

CONSANGUINITY.

Consanguinity in itself was not a bar to mating. If inbreeding resulted in disappointment, all that had happened was that disadvantageous characters, the ingredients of which were previously hidden and unexpressed, had been brought to light. Inbreeding thus purified a stock. This system of mating might be disastrously expensive if the ingredients of hereditary combinations which resulted in undesirable or non-viable types pre-existed. But, on the other hand, such individuals as had been made homozygous for the desirable characters would be far more valuable material in the hands of a breeder than the stock with which he started, for, in virtue of their hereditary constitution, they must breed true for this character. Line-breeding and family-breeding were merely inbreeding in a less intensive form, and might therefore be expected to yield the same results in a longer period of time.

Livestock breeders were well acquainted with the superiority of the first cross for many commercial purposes. In order to obtain this hybrid vigour in any degree, it was essential that the two parental stocks should be unrelated, purebred, and that each should itself be possessed of qualities that were excellent. In crossing, the deficiencies of one parent could be made good by the excellencies of the other, the good of one could be reinforced by the good of the other. Experimentation alone could decide whether a particular mating would be attended by hybrid vigour in the offspring. The first cross, deliberately bred for a definite commercial purpose, must not be used for further breeding.

THE BREEDER'S PROBLEM.

The problem for the breeder and the biologist was not the making of a new breed of dairy cattle, but the raising of the average production of breeds already existing. In every breed of farm animals the average production was far below that of the outstanding individuals, and the task before the agriculturist was that of defining the economic upper limit of productivity, since all production of this kind was physiologically expensive, and of reducing the margin between the average and the best. Thus it appeared that the principles of animal breeding were:—(1) The definition of the ideal type in relation to habitat and destiny; (2) the definition of the shortcomings of already existing types in relation to the ideal; (3) the improvement of the already existing types by continued selection in the direction of the ideal, or, the hybridisation of different types within one and the same breed or race or between two or more recognised breeds or races in order to collect in one and the same stock as many as possible of the properties of the ideal; (4) the selection of animals for breeding as far as possible on the basis of the progeny test, individual merit and pedigree also to be considered; (5) the system of inbreeding to be followed to as great an extent as is practicable; (6) the system of outcrossing to be practised for the production of special types for purposes other than for further breeding.—*Glasgow Herald.*

DIVISIONAL REPORTS.

Central Division.

A large number of Fellows was present at a meeting of this Division, which was held at 10 Red Lion Square on Thursday, February 2nd, under the Presidency of Captain W. K. Townson, when a most informative paper, entitled "Some Aspects of Organo-Therapy in its Relation to Veterinary Practice," was read by Professor A. R. Smythe, of the Royal Veterinary College. This paper is published at the commencement of the present issue of the *Record*. The discussion upon it, to be opened by Professor J. McCunn, was postponed to the next meeting of the Division.

The following attended: The President (Capt. W. K. Townson), Messrs. H. Bell, W. Brown, Capt. G. N. Bushman, Messrs. H. E. Bywater, W. Downing, R. Eglesham, W. S. Ferguson, Dr. Tom Hare, Principal F. T. G. Hobday, Major A. Hodgins, Major H. Kirk, Mr. G. H. Livesey, Mr. G. P. Male, Professor J. McCunn, Mr. J. W. McIntosh, Capt. F. C. Minett, Major-General Sir John Moore, Mr. E. W. Parks, Mr. W. Perryman, Major L. P. Pugh, Lt.-Col. P. W. Dayer-Smith, Professor A. R. Smythe, Messrs. A. W. Stableforth, F. H. Stainton, J. Stephens, Capt. R. J. Stow, Mr. E. L. Stroud, Major F. R. Wall, Capt. W. Watt, Mr. J. Willett, Professor G. H. Wooldridge, Lieut.-Col. T. D. Young and J. F. Macdonald, *Hon. Secretary*.

Visitors.—Messrs. E. C. Doyle, A. A. Mackay, F. W. Medlock, J. S. Steward, J. B. Walker and R. A. Willett.

The PRESIDENT proposed that, as the minutes of the previous meeting had not been published, the question of their confirmation should be left over to the next meeting. This was agreed.

CORRESPONDENCE.

(i) Apologies for absence from Major F. Chambers, Mr. J. C. Coleman, Major G. W. Dunkin, Captain S. J. Motton, Dr. Gilbert Orme, Major Graham Rees-Mogg and Mr. H. L. Roberts.

(ii) From Dr. A. L. Sheather, returning thanks for his election as a Fellow of the Division.

(iii) From the Secretary of the N.V.M.A., informing the Division that the Council of that body had unanimously decided to support Dr. Sheather's application for the registration of his premises under the Vivisection Act.

(iv) From the same source, acknowledging the Division's good wishes to the Association.

(v) From the Assistant Secretary of the National Horse Association, noting that the Division had appointed Messrs. J. W. McIntosh and W. Perryman as its representatives to the proposed Conference to consider the condition of the roads.

The following report was also forwarded by the National Horse Association:—

THE NATIONAL HORSE ASSOCIATION OF GREAT BRITAIN.

"THE COMMERCIAL HORSE CAMPAIGN."

A Conference of Representatives of Horse Breeding and kindred trade organisations took place at 12 Hanover Square, W.1., on Thursday, December 8th.

Mr. A. B. Charlton (in the Chair) reported that as a result of the initial efforts of the National Horse Association, the campaign to encourage and maintain the use of the horse for transport had proved very successful. The object of the campaign was to call attention to the undoubted fact that the horse for short distance journeys has proved the cheapest form of transport. This claim is based on the following grounds—No tax, long service, intelligence, small depreciation and all round economy, and is substantiated by comparative figures supplied by leading commercial firms.

The Association was calling attention to these facts through the medium of firms and individuals whose interests are associated with the use of the horse, and it is evident that there is a strong body of people who recognise that the horse is still an important factor in transport work.

The display card had proved most popular, and copies are being exhibited by the following trades: Saddlers, corn, hay and forage merchants, van builders, veterinary surgeons, blacksmiths, farriers, job masters, cartage and haulage contractors, shoe and nail manufacturers, and horse clippers, clothiers and dealers.

The most successful and popular form of publicity had been the issue of poster stamps, and some 200,000 had been circulated, while an average of 6,000 are ordered daily.

The official leaflet adumbrating the economic and adaptable advantages of horse traction has attracted the favourable comment of practically all the London and Provincial papers, and resulting applications for copies and enquiries as to the comparative costs of motor and horse transport have been received from many large London and Provincial firms.

The various leaflets issued by the Campaign, are being distributed in all parts of the country.

MEMBERSHIP: The Secretary (Mr. R. A. Brown) intimated that in response to many enquiries as to membership, the Council at their last meeting had resolved that membership of the Association in future should be open to individual members, firms and trade organisations.

Captain Morris (National Farmers' Union), seconded by Mr. F. W. Mayes (Hay Traders' Association), then proposed:—

> "That the activities of the 'Back to the Horse' Campaign should in future be under the auspices of the National Horse Association, and that all trade organisations and firms be invited to become members."

Captain Morris stated that it was essential that the campaign should be well supported by all whose material interests are so vitally affected by the use of horse transport, and therefore expressed the hope that the delegates from the various trade organisations would impress this fact upon the members of their respective Associations.

Mr. C. G. Argles (National Horse Association) remarked that the Association was also going very thoroughly into the question of slippery roads, as affecting cattle and live stock, and hoped shortly to present a list of definite recommendations for road surface improvement. Mr. Argles suggested that this information should be brought to the notice of prospective members.

Sir Lees Knowles, Bart. (Hackney Horse Society), then kindly agreed to donate the sum of £100 towards the Association's funds for the purpose of ensuring a continuance of the publicity campaign. A unanimous vote of thanks was passed to Sir Lees Knowles for his generous support.

Various gentlemen and firms intimated their readiness to become members of the Association, and the Secretary was instructed to prepare a leaflet outlining the different spheres of the Association's activities, which should also contain comparative costs of transport, and the views of leading firms on the question.

A cordial vote of thanks to the members of the Sub-Committee was passed, and it was decided to re-constitute the Committee for 1928, so that each trade should be represented. The following were then appointed: Mr. F. J. Rawle (saddlers), Mr. F. W. Mayes (hay and forage trade), Mr. A. B. Charlton (horse breeding societies),

while representatives would be nominated to represent farriers, blacksmiths and veterinary surgeons.

In conclusion, the Chairman remarked that the Commercial Horse Campaign would be most vigorously maintained in 1928, with—it was hoped—beneficial results to breeders, owners and all interested in the horse.

Sir JOHN MOORE: We are very much indebted to the Secretary for reading out this account of the activities of the National Horse Association, but I would like to point out that this Society ought to take action on similar lines to the N.V.M.A. and indicate to the N.H.A. that veterinary surgeons do not belong to trade organisations: they should be distinctly told that we are a profession and not a trade. I think our Secretary ought to be instructed to write asking them to remove the Central Veterinary Society from the category in which it now appears and to place it in a category of its own.

The HON. SECRETARY: The "National," in writing to the National Horse Association, have drawn attention to the fact of their inclusion in the trades category, and have mentioned the Central Veterinary Society as well, so that the matter has already been dealt with.

Messrs. McIntosh and Perryman agreed to continue to act as representatives of the Division.

Nominations.—Mr. C. W. Howard (Dorking), Captain F. W. Medlock (Kingston-on-Thames), Mr. E. L. Taylor (Ministry of Agriculture Laboratories, Weybridge), and Mr. R. A. Willett (Staines), were nominated as Fellows.

Elections.—The elections as Fellows were made of Mr. Walter Downing (Paddington), and Mr. Kenneth Ollerhead (Kensington).

MORBID SPECIMENS.

The PRESIDENT: As the morbid specimens on the table are exhibited in connection with the paper we shall shortly hear, I think they might be viewed subsequent to its delivery. Are there any others?

Mr. G. ELMES: The specimen which Dr. Hare has brought here on my behalf is the foot of a horse with which I came in contact. In August, 1926, he was perfectly sound, but on the front of the foot he showed a little mark, on the lower third of the wall, as though at some earlier date he had had a tread on his coronet and it was growing out. No notice was taken of this and the horse went on with his work and eventually started hunting. When November came round, however, he began going lame and eventually broke out at the coronet. This was treated and healed up perfectly. The horse was hunted again, when the same thing happened. At the end of the season the front of the wall was stripped down to sound horn. When the horse came up for hunting in September the hoof was sound, but as soon as he started hunting the trouble recurred. That was the repeated history until just recently, when the animal was destroyed.

I then cut the foot in two, and you can see, where on each occasion lameness occurred, a peculiar growth. It appears that the pedal bone is a little atrophied in the front. A little black watery matter oozed out and the sensitive laminæ appeared to be wasted at that spot. Whether or no this is a keraphyllocele, I am unable to say.

Dr. T. HARE: I cannot offer any observations other than of negative criticism, on this specimen, except to say that Professor Wooldridge drew attention to a similar condition in his book. But I would point out that it does not help matters much to give a name to a thing unless we understand its nature. A keratoma is a neoplasm. If that is a neoplasm, it is one following physiological lines of growth, and I have never heard of a neoplasm doing such a thing. I have heard for the first time to-night about this pus formation. I can hardly deem it to have been true pus without it causing osteomyelitis, of which I saw no evidence. I shall be most interested in hearing what observations are to be made.

This is the first opportunity I have had of speaking to this Society and I hope that all members of it and of the veterinary societies throughout the country will send us in specimens they may think will be of interest either to the class or for the museum which we are providing. We are building a Pathology Museum at the Royal Veterinary College and we hope in the course of a few years to make it one of which the profession will be proud. (Hear, hear.)

Principal F. HOBDAY: I should like to thank Mr. Elmes for bringing this specimen forward, for it is of the greatest interest to the practitioner. It does show, from the clinician's point of view, the value of following a case up to the *post-mortem*, for such a course enables one to demonstrate to the client why, in such a case, the veterinary surgeon cannot diagnose the condition exactly.

Professor G. H. WOOLDRIDGE: I saw the specimen at the College, and on examining it I came to the conclusion that it was a condition of keratoma, and that if it were sawn through in the other plane it would show the irregularity of the horn at the toe, causing pressure on the os pedis and resulting in the production of a groove (due to pressure atrophy) down the front of that bone.

I now see that what I anticipated is actually present. You will find that the horn at the toe does press inwards to the os pedis to an extent of at least a quarter of an inch and that there is a depression on that bone. I do not propose to enter into a discussion as to whether or not a keratoma is inflammatory or a neoplasm, but clinically the condition is called a keratoma. It is a very interesting fact, too, that in several of these instances that have come before my notice, stripping of the horn, including the horn over the coronary band, has been effective, and it seems to show that either there is better facility under these circumstances for the new horn to grow down, or else that the responsible portion of defective horn-secreting substance has been removed with the stripping. I have never had the good fortune to examine the foot after the operation when the horse has gone sound for some time, or to make a *post-mortem* when the horse died or was destroyed. The specially interesting feature in this case is the history, which is not the usual history one gets in cases of keratoma. You generally get a history of an obscure type of lameness, reminiscent of the lameness in laminitis, and it is in such cases as these in which complete stripping of the wall of the hoof is effective.

Mr. W. PERRYMAN: I am particularly interested to see the foot Mr. Elmes has brought in, and I should say myself that it is a case of keratoma. I am interested for this reason: had it not been for the fact that it has hitherto been the case for some months that we have been unable to

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display specimens in this room, I would have shown you a similar exhibit. I had a case keratoma. I took a wedge of horn away on two or three occasions. The animal would go to work for a short time and then would become lame. I explained to the owner that I thought the only radical cure would be to throw the animal and strip the foot, and he gave his consent. I did so and took away all the sensitive laminæ that showed any signs of disease, right down to the pedal bone, and scraped that. It looked a very disfigured foot, but I am pleased to say that the animal worked for four years, eventually dying of a twisted bowel. I have the foot and, after Mr. Elmes' exhibit, I would like to bring it to the next meeting. (Hear, hear.) You will see that the bone has been worn away and you will see the condition of the changed horn and the peculiar new horn formed. That horse never went lame again. I think in cases like this, if the animal is worth it, it is no use adopting half measures—you must go right down and take all the diseased laminæ away that are associated with the inflammatory action.

Mr. G. P. MALE: When two such well-known Professors differ so entirely in their views concerning the nature of the condition, one hesitates to give an opinion, but I myself would rather incline to the view that that was originally an injury to the pedal bone. The history rather points to that, and from one's view of the pedal bone it has a very irregular outline, which one would not expect if it was a keratoma. My own view is that you have got an abnormal secretion of horn in that position, which became under-run with pus, but I cannot see any trace of keratoma.

Major H. KIRK said he had brought no morbid specimen, but wished to bring a curious fact to the notice of the meeting. He then read an extract from a client's letter as follows:—"I thought, it being the good Sabbath, I'd give my dog a worm pill and see if that was the reason he was 'poor,' as you expressed it; so I gave him not a bite to eat since lunch yesterday, and this morning gave him one of the pills you sent me. I took him for a long walk, and by 3 o'clock, as nothing had happened, I gave him a dose of castor oil and he passed the pill at a quarter to four, absolutely unmelted."

Continuing, Major Kirk said: This is curious, and I have been at a loss to give an explanation. The pills used are made by a very reputable firm well known to you all, and I may add that this is the third time a similar thing has occurred in about four years. It seems inexplicable that a sugar-coated pill can pass right through the digestive tract without even the sugar becoming dissolved. It seems to point to the need for giving plenty of water after a pill.

Another small matter which might interest small-animal practitioners is the toxicity or otherwise of lemon juice for cats. The editor of a cat paper wrote to ask my opinion on this question, and stated that he had received several letters from cat owners and breeders, supporting the view that lemon juice is distinctly poisonous.

Major Kirk produced the correspondence and emphasised the remarks of Dr. Herbert Snow, who said: "*We* like lemonade! Its basis—citric acid—is a potent poison to cats and rabbits." Several people seemed to have anointed cats' skins with glycerine and lemon juice, with fatal results.

The speaker replied to the editor that he had never given lemon juice to cats, and had no knowledge of its toxicity. "Perhaps," he said, "if any member present can throw any light upon the matter, he will be good enough to speak."

At this stage, the PRESIDENT called upon Professor Smythe to give his address, which was heard with great interest and appreciation. At its conclusion, the President said: I am sure we are all greatly indebted to Professor Smythe for his very interesting paper, and no doubt it will be a subject for sustained discussion. I would like to have the feeling of the meeting as to whether we proceed to the discussion now or postpone it to our next month's meeting. We still have Major Wall's proposition to deal with.

The meeting agreed to postpone the discussion.

PROFESSIONAL ETHICS.

Major R. F. WALL proposed: "That this Society, in Committee, shall hold not less than one meeting annually for the sole purpose of discussing professional ethics." In doing so, he said: This proposal that is standing in my name is one which I hope will meet with your approval. If I may say so, I think that when most boys go to school they meet with two kinds of laws and regulations—the written and the unwritten. Most of us promptly forget the written, but I venture to say that the unwritten laws remain with us throughout our lives. The basis of these unwritten laws is loyalty, and I much regret to say that in the past our profession has not been as loyal as we would have had it and, furthermore, I think that even to-day there is room for improvement in that respect.

The idea came into my mind some few months ago when speaking with two or three of my fellow members who were emphasising the necessity for the exercise of professional loyalty to one another. I think that the great feeling that we should have is that which the motto of our College, *Vis unita fortior*, should inspire, and that we should stand as one body and back each other up through thick and thin.

Having cited several examples of departure from the principles of professional ethics, Major Wall continued: Therefore I think that if this Society will only hold at least one meeting to consider nothing else but ethics, to try and create some enthusiasm so as to raise the standard of ethics amongst ourselves, it would be a very good thing and help us to take a better place with the general public and also with other professions. I do not want to say more on this point, but I think you have all got the idea—that if we can by holding a meeting, in Committee, once a year, have a frank talk on the ethics of the profession, it would be of very real value and would perhaps extend to relieving the Registration Committee of the Royal College of some of its work.

Mr. J. W. MCINTOSH: In order to open the discussion on the matter, at any rate, I should like to say that in my view while there may be a great deal in what Major Wall says, it is difficult to know how you can go about it. Probably, the men who are the greatest offenders on the question of ethics are the very men who are outside the membership of the Society. Again, the whole spirit and object of such societies as this, although primarily intended to advance science, is to develop a spirit of harmony, co-operation and good fellowship; in fact, the aims and objects of the Society are very largely ethical in character already. Whether or not it would be a good thing to devote a whole evening to a

discussion of this kind I do not know—I do not see how the influence of such a discussion would get beyond this room if the meetings were held in Committee as suggested.

Principal HOBDAY: I should like to point out, whilst absolutely in sympathy with Major Wall in this, that if we pass this resolution we shall bind ourselves to give up one evening every year and I think we could not afford to do that. The way to do it is for a paper on the subject to be prepared in the ordinary way, and if it is accepted by the Council of the Society for presentation at a meeting, well and good.

Mr. J. WILLETT: While cordially in sympathy with Major Wall's feeling in this matter, I think that any discussion on such a subject in Committee would defeat its own object, for any discussion held for the purpose of educating the members of the profession should be a public one. I suggest that we approach Mr. Bullock to help us; devote an open evening to professional ethics and that might do us more service.

Principal HOBDAY: If the members are keen on this, I should like to say that this subject has already been arranged for at the Royal Veterinary College, and Mr. Bullock has very kindly consented voluntarily to give the students (at their Medical Society meetings, before the papers) a short series of discourses on Professional Ethics and Veterinary Jurisprudence. Practitioners will be very welcome. The meetings commence at 6-30 every Tuesday evening. Of course, there will be nothing of the "Committee" about them. (Laughter.)

Mr. MALE: Would it meet Major Wall's wishes if instructions were given to the officers of the Society that they should make an endeavour, once a year, to get a paper on professional ethics?

Major WALL: That would meet my point quite well.

Professor WOOLDRIDGE: Any discussion might be much more free if it were known that it would not be reported and recorded in our professional journal.

Major WALL: I think Mr. Male's proposition is a good deal better than mine and, if I may, I should like to withdraw it and second his.

The PRESIDENT: It has been proposeed by Mr. Male, and seconded by Major Wall, that we should try to get one paper during each session to discuss a matter of professional ethics. I will put it to the meeting.

The proposition was carried unanimously, Mr. J. WILLETT remarking, amid assent, that all greatly appreciated Principal Hobday's invitation, but that the members wished to see a paper on professional ethics published in the professional paper.

Sir JOHN MOORE: I should like to propose a very hearty vote of thanks to Professor Smythe for his very carefully prepared, learned and instructive paper. I think it is quite right at this late hour that the discussion on it should be postponed, because such a course gives everybody the opportunity to read it over in the *Record*, and thus enables us to get full value from the discussion.

The vote of thanks was accorded with acclamation, as were similar tributes to Mr. Elmes for his clinical contribution and to the President for his conduct of a highly-successful meeting.

J. F. MACDONALD, *Hon. Secretary.*

Lancashire Division.*

INTERESTING CASES PRESENTED AT MANCHESTER.

A General Meeting of the Lancashire Division was held at the Grand Hotel, Aytoun Street, Manchester, on December 15th, 1927.

The President, Major J. H. Wright, O.B.E., M.R.C.V.S., occupied the Chair, and there were also present, Messrs. K. D. Downham, L. A. Watson, H. T. Matthews, E. H., Curbishley, J. B. Chadwick, R. H. Oddy, R. C. Locke, J. Holroyd, W. Tweed, O. A. Ducksbury, W. E. Burndred P. J. Lindsay, J. K. Bateman, A.W. Noel Pillers, J. Spruell, G. H. Locke, H. H. Aldred, R. Hedley and Professor Gaiger.

Visitor.—Mr. A. Leslie.

Apologies for unavoidable absence were received from Colonel Brittlebank, Majors J. Abson and F. Hopkin, and Messrs. Warwicke Fowle, J. H. Carter, H. L. Torrance and E. F. Wood.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read, confirmed and signed.

Nominations for Membership.—Messrs. C. A. McGaughey, M.R.C.V.S., D.V.S.M. (Vict.), Manchester, A. Alexander, M.R.C.V.S., D.V.S.M. (Vict.), Salford, J. B. Garside, M.R.C.V.S., Congleton, and A. Walker, M.R.C.V.S., Liverpool, were nominated to membership of the Division.

Council Report.—The Secretary read the minutes of Council meetings held on September 23rd and November 9th, 1927.

It was unanimously resolved that the Division support Dr. Leslie Sheather in his application for a Vivisection Licence, for his premises.

R.C.V.S. Council Election.—Mr. HOLROYD proposed, and Mr. BATEMAN seconded, that Mr. G. H. Locke be nominated the Association's candidate for the Council of the Royal College of Veterinary Surgeons, and Mr. NOEL PILLERS proposed, and Mr. G. H. LOCKE seconded, hat Mr. K. D. Downham be also nominated. These motions were carried unanimously.

ELECTION OF OFFICE-BEARERS AND COUNCIL FOR 1928.

President.—It was proposed by Major WRIGHT, seconded by Mr. G. H. LOCKE, and unanimously resolved, that Mr. H. H. Aldred, M.R.C.V.S., be elected President.

Vice-Presidents.—Major J. H. Wright, Messrs. E. L. Butters and P. T. Lindsay, were elected Vice-Presidents.

Hon. Treasurer.—Mr. A. W. Noel Pillers, was elected Hon. Treasurer.

Hon. Secretary.—Mr. J. Spruell, was elected Hon. Secretary.

Hon. Auditors.—Messrs. T. Dobie and F. Warburton, were elected Hon. Auditors.

Council.—The following were elected: Messrs. Curbishley, Wilson, Edwards, Hopkin, Locke (G. H.). Woods. Brittlebank, Holroyd, Burndred and Professor Gaiger.

Annual Dinner.—Mr. SPRUELL proposed, and Mr. CURBISHLEY seconded, that the Division have their Annual Dinner at Liverpool in February next and that the President, in accordance with the usual custom, be granted ten guineas for the entertainment of guests. The motion was carried unanimously.

* Received on 23rd January.

The following were appointed the Dinner Committee, with power to act: Messrs. Aldred, Noel Pillers, Spruell and Professor Gaiger.

Exhibits and Cases.

The President than invited the members to bring forward pathological specimens and interesting cases, expressing the hope that there would be some good discussions.

Mr. G. H. Locke exhibited the fractured sacrum of a horse. The history was that the horse slipped on the tram lines and afterwards held one of the hind legs in an extended position. The horse continued to stand, but was quite useless, and its destruction was ordered. A careful *post-mortem* examination, including the boiling out of the spinal vertebræ, was necessary before the injury could be discovered—when the sacrum was found to be fractured, though not completely, no displacement having occurred.

Mr. Tweed next submitted an interesting specimen—the lung of a cow which had died from contagious pneumonia.

Mr. Matthews drew the attention of the meeting to the qualities of Defay's Paste, which, he said, was of interest mainly to those who did much shoeing and footwork. "It is," he said, "mentioned in Caulton Reeks' book ('Diseases of the Horse's Foot'—2nd edition, p. 183). I bring it forward because it does not appear to be so widely known as its qualities merit. For patching up broken feet and filling sandcracks it is excellent. Provided the foot is well cleaned of all grease before application, it sticks very tenaciously and will hold a nail as you can see. It can be cut with a knife or rasped. The only thing against general use is the cost. It is made of two parts of gutta percha which runs between 15s. and 20s. per lb. and one part of coarsely powdered gum ammoniac (4s. to 6s. per lb.). These are welded together in a tin over a slow fire, mixed well by stirring and poured into a mould of convenient size for future use. Before application the foot must be well cleaned with some fat-solvent such as ether, and the paste applied hot and moulded while it is still soft. I can recommend strongly, but do not give it to your blacksmiths for indiscriminate use."

He also drew attention to the following: A warning. Tuberculosis of the skin appears to be not uncommon among those of us who do much cattle work. I have had it myself and I know of at least five other veterinary surgeons who have it or have had it. In my own case it resulted from a scratch by a cow's tooth. Anyone who has a warty or spreading skin lesion that will not heal, I would advise to have it properly examined. If it is tubercle it is quite amenable to treatment, but watch your axillary glands.

Mr. Noel Pillers exhibited (1) both hind legs of a half-grown sable rabbit which during life had eaten both metacarpal regions completely away. The animal was one of a litter several of which did the same thing. That the injury was self-inflicted was proved by isolation. No cause could be found on the limbs or at a *post-mortem* examination. On the grounds that some deficiency factor might have been at work, the Morant system of green grazing was instituted in the rabbitry and no further cases occurred. (2) The superior maxillæ and pharyngeal region of an aged chestnut cart mare, which had died of tetanus. Behind the last molar on each side was a depression about half-an-inch deep which was caused by a seventh lower molar on each side penetrating the structures. At the *post-mortem* examination the holes were in a similar state to an ordinary septic wound and were most probably the channel of infection. The subject was in excellent condition and had never shewn signs of dental incapacity.

Mr. Bateman exhibited a live Airedale bitch which was suffering from a grossly-enlarged near hind tibia. She was five or six years of age and there was no history of any fracture. The animal was examined with great interest by the members, and Professor Gaiger asked if the animal had been X-rayed. Mr. Bateman stating that it had not. In response to the President's invitation to members to give their views on the subject, Professor Gaiger said it was difficult to say anything definite. He thought it was a malignant growth, and the malignant tissue was liable to burst. He expressed the hope that he would see the leg after the animal had been killed.

Mr. Burndred said he agreed with Professor Gaiger—he thought it was a malignant growth.

Mr. G. H. Locke asked if the condition was the result of a fracture.

Mr. Bateman said there was no history of a fracture, and the dog never went lame.

Major Wright stated that Mr. Bateman would again bring the subject forward after the animal had been destroyed.

Mr. Bateman also gave particulars of an interesting case of poisoning. He stated he was called to see a two-year-old heifer one night at the beginning of the year. Her temperature was 100.2°F.; she was motionless, her pulse accelerated, breathing normal, no action in stomach, or bowel, and membrane livid. He prescribed one quart of linseed oil and instructed the owner to give her two eggs in milk later. The following morning the animal's condition was worse and he suspected inflammation of the stomach. She had a watery discharge from the nose and there was blood in the rectum. Later the cow developed delirium and it was obvious that she was going to die. The owner was advised to examine all his stock and sometime later he found a young bull dying in a field. The animal was killed and then immediately bled. A *post-mortem* examination was made and a number of pea-size and pea-shaped pellets and particles of scraped paint were found in the rumen and abomasum. He thought it was lead poisoning. Later the same night there was another case and the animal was killed immediately. He found similar contents in the stomach to the previous case and these he submitted for examination, and was informed that they contained lead arsenate. There had been no record of painting at the premises and he could not find out from where the lead had come. He stated that there were areas in the rumen, reticulum and abomasum which, when the surface was scraped, were easily detachable and were inflamed underneath. He did not know definitely whether the trouble was due to lead or arsenic, but the question, to his mind, was quite irrelevant. It seemed sufficient to state "lead arsenate."

Mr. Downham asked what was the longest period the cow suffered, and Mr. Bateman replied thirty hours. Mr. Downham thought the condition was acute lead poisoning.

Mr. ALDRED asked if there has been any previous cases at the farm, and Mr. Bateman informed him there had not.

The meeting concluded with a heartily-accorded vote of thanks to the gentlemen who had brought forward the cases.

JOHN SPRUELL, *Hon. Secretary.*

North of Scotland Division.*

MEETING AT ABERDEEN.

The half-yearly meeting of this Division was held in Marischal College, Aberdeen, on Saturday, January 21st.

Mr. James Anderson, Keith, President, was in the Chair.

There were also present: Messrs. W. Anderson, W. Brown, Beattie, Cumming, Clerk, Drennan, Grant, Hepburn, Howie, Lyon, Macpherson, McVean, W. J. B. Robson, Sievwright, Mitchell, and McAllan, Hon. Secretary.

The minutes of last meeting, as they appeared in the *Veterinary Record*, were taken as read and were approved.

Apologies for absence were received from Messrs. H. W. Robson, Niven, and Russell.

The PRESIDENT referred to the death of Mr. James Murray, Cullen, one of the oldest members of the Division, and a vote of condolence to Mrs. Murray was passed—the members standing in silence. The Secretary was instructed to send a letter of sympathy from the members to Mrs. Murray.

Correspondence.—The Secretary read letters from Messrs. W. S. Lornie, Perth; William Marshall, Huntly; James Forrest, Turriff, and Adam Kerr, Ellon, resigning membership of the Division. These were regretfully accepted.

A letter from the Council of the National Veterinary Medical Association was read with regard to the control of cows reacting to the tuberculin test and asking the opinion of the Division on the following points:—

(*a*) Whether the time has arrived for exercising some form of control over cows that have reacted to the tuberculin test;

(*b*) If so, what form that control should take and how far it is practicable at the present time.

The members were of opinion that the time was not opportune for exercising any control over cows which reacted to the tuberculin test and the Secretary was instructed to reply to that effect to headquarters.

The Secretary read the letter which he sent to the Lord Provost of Aberdeen, with a cheque for twenty-five guineas, to the funds of the Joint Hospital Scheme which was instituted and is being carried on by the Lord Provost. The Lord Provost's letter of sincere thanks to the members for their donation was read.

The PRESIDENT expressed his gratification that they had been able to give such a handsome donation to the fund.

Election of Office Bearers.

The PRESIDENT proposed, and Mr. WM. BROWN seconded, that Mr. R. E. Drennan, Aberdeen, be appointed President for the ensuing year. This was unanimously agreed to.

Mr. Clerk, Stonehaven and Mr. Rice, Montrose, were appointed Senior and Junior Vice-Presidents, respectively.

The Secretary was re-appointed.

* Received on 24th January.

New Members.

Messrs. Mitchell (Alford), Hendry (Cullen), Begg (Inverness) and J. Burgess (Aberdeen), were elected to membership of the Division, and the President expressed gratification at their joining and the hope that they would find the meetings pleasant and profitable.

Dr. J. STANLEY WHITE was then introduced to the meeting. He gave a most interesting address on "Veterinary Biological Products," illustrated by still photographs. Dr. White went very fully into the great use now being made of various biological products in the treatment and the prevention of disease in all parts of the world. A cinematograph film illustrating the production of sera and vaccines of various kinds was then shown. Dr. White promised that the film would be a good one and after showing it the members fully concurred that nothing finer in the way of illustrating laboratory methods could be seen. It was, indeed, a most elaborate and thorough film and the members found the very greatest pleasure and interest in seeing it.

On the motion of the PRESIDENT, seconded by the SECRETARY, Dr. White was most heartily thanked for the trouble he had taken, both in addressing the members and in arranging for the exhibition of the film.

Dr. WHITE, in reply, said he was indeed most gratified at having been present and said that he had had a very busy few days in Aberdeen, since he had managed to address five meetings in about two days.

The business was concluded by the members according a very hearty vote of thanks to the retiring President, Mr. James Anderson, Keith.

J. M. MCALLAN, *Hon. Secretary.*

R.A.V.C. Point-to-Point Association.

PRELIMINARY NOTICE.

The annual race will be held this year on Saturday, April 21st in connection with the Hambledon Hunt Point-to-Point Meeting at Liss, near Petersfield, Hants.

All Officers R.A.V.C. (Regular and Territorial) on the active or retired list are eligible to enter, and the Committee hopes that as many Officers as possible will do so and ensure success to this sporting event. It has been decided to grant financial aid to Officers entering horses that are normally stabled outside a radius of thirty miles from the venue of the race, to assist towards the expenses.

There will be a Corps Tea Tent on the course. Tickets, price 2s. each, can be obtained in advance from the Hon. Secretary or on the course. It is requested, however, that tickets be purchased one month prior to the meeting in order that some idea of the number to be catered for can be ascertained.

All Officers (Regular, Territorial and Retired) are eligible for membership of the Association, on payment of a Life Subscription of 10s. As this is the only available source of income of the Association, the Committee hopes that all Officers, who have not already done so, will support the Association by becoming Life Members.

Conditions of the Race.—(Challenge Cup and 75 per cent. of the Sweepstakes to the Winner and 25 per cent. of the

Sweepstakes to the Second), for horses the property of, or Government Charger and Troop Horses hired since the 1st March, 1928 of, Officers of the R.A.V.C. (Regular and Territorial) on the active or retired list, that have been regularly and fairly hunted with a recognised pack of hounds during the season 1927-28. No horse is qualified to run that has ever won a race of any description (Point-to-Point, *bona fide* Hunt and Military Races excepted). Weight, 13 stone and over. Distance, about 3¼ miles. Entrance fee, one sovereign. To be ridden by those qualified to enter.

Any further particulars can be obtained from—The Hon. Secretary, R.A.V.C. Point-to-Point Association, Station Veterinary Hospital, Aldershot.

Student's Contribution.*

A Case of Staphyloma and Panophthalmitis in a Pekingese Puppy.

By John M. McDonald, Glasgow Veterinary College.

Subject.—A six-weeks'-old Pekingese pup, in good health and condition except for the optical trouble.

History.—The history was that of having been scratched across the eyeball by its playmate, and treatment elsewhere consisting of antiseptic collyria, sometimes with, sometimes without, cocaine for three weeks previous. Destruction had been advised but the owner would not consent.

When seen here, the eye was in a state of panophthalmitis, with hypopyon, and the cornea was torn through till Descemet's membrane protruded fully ⅛in., through which oozed continuously a little pus. The lens could be seen pressed well forward towards the front of the anterior chambers.

Prognosis.—This was grave, but not hopeless, and the owner was warned that there was a grave risk that the eye would have to be removed. This, of course, could not be done during the still acute stage of the inflammation, owing to danger of extension of the same to the deeper and more vital structures.

Treatment was commenced with collyria of pilocarpine intended to diminish the intra-ocular pressure, with boracic acid as antiseptic, three times daily. As these measures, after three days' trial, appeared to be insufficent to diminish the amount of pus present, it was decided that more efficient drainage was necessary. Puncture of the cornea was decided upon.

Preparatory to this, ¼ gr. morph. sulph. was given hypodermically. The ensuing sickness and straining produced a true staphyloma, the fringe of the iris projecting fully ⅛in. through the ruptured cornea.

As soon as the patient was under the effect of the narcotic and cocaine applied locally, the staphyloma was ligated, and with a Græfe's cataract knife a slit was made in the cornea and Descemet's membrane in an outward direction.

The staphyloma was ligated before puncturing the cornea in order to afford some barrier to the possible forward movement of the lens with the ensuing gentle digital pressure on the eyeball, which produced a copious flow of pus from within the eyeball. In making the puncture, care had to be taken to insert the blade in a nearly vertical direction in order to obviate injury to the lens, which was displaced well forward.

Having gently squeezed most of the pus from within the eyeball, the treatment prescribed was a collyrium of collosal argentum three times daily. In three days the staphyloma sloughed off, leaving a slight scar and considerable opacity. Treatment was continued for fourteen days, then the patient was discharged. Until within two days of discharge an Elizabethan collar was constantly worn to protect the eye. The scar on the cornea had completely disappeared and the opacity was considerably reduced in size—so much so, in fact, that the pup was, on the date of discharge, able to distinguish light from dark, surely a very infrequent but pleasing termination to such a case.

* Presented for award under the N.V.M.A. Clinical Prize Scheme for Students, 1927.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Feb. 25th—Annual Meeting of the North of England Division at Newcastle-on-Tyne.

Feb. 27th—Meeting of the Finance Committee, 4 p.m.; Editorial Committee, N.V.M.A., 4-30 p.m.

Feb. 29th—Annual Meeting of the South Eastern Division at Tunbridge Wells.

Mar. 1st.—Meeting of the Central Division at 10 Red Lion Square, W.C.1.

Foot and-Mouth Disease.

In the House of Commons recently, the Minister of Agriculture informed Sir Basil Peto that the Dominions of Canada, Australia and New Zealand were now free of foot-and-mouth disease. No definite proof had been obtained that foot-and-mouth disease outbreaks in this country had been due to infection by meat imported from South America.

Suspicion, however, had arisen that certain outbreaks had been due to cloths in which imported meat was wrapped or to bones from such meat. To guard against this danger, orders had been issued which require meat bones or other parts of a carcase or cloths in which foreign meat had been wrapped to be boiled or disinfected before they were brought into contact with animals.

As a further precaution, negotiations had been in progress for some time with the South American Governments, which should result in the adoption in those countries of measures for preventing the introduction of infection into Great Britain.

Replying to Mr. Wardlaw Milne, the Minister of Agriculture said he had seen reports of the discovery in France of a new cure for foot-and-mouth disease but he had no official information on the subject. No invitation had been received by the Ministry to send representatives to attend tests. Their policy was eradication by slaughter, and that seemed to be a cure and not a preventive.

Through the Foot-and-Mouth Disease Research Committee they were doing everything possible to keep abreast with scientific development.

Army Veterinary Service.

London Gazette—War Office—Regular Forces.

Feb. 14.—The follng. Capts. to be Majs. (Jan. 10), C. W. Heane, K. S. Simpson and W. M. Rouse.

Territorial Army Reserve of Officers.

Capt. A. J. McCarmick, from active list, to be Capt. (Feb. 15).

H.M. Stationery Office Publications.

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28 Abingdon Street, S.W.1; Cardiff: 1 St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120 George Street.

	Price Net.		*Post Free.*	
	s.	d.	s.	d.
Agriculture and Fisheries, Ministry of:—				
Diseases of Animals Branch Circular Letter No. 90. Sheep Scab Order of 1928. To all Local Authorities. February 10th, 1928. (24-9999-00-00)	0	2	0	2½
Sheep Scab Order of 1928, Memorandum (24-9999-00-00)	0	2	0	2½

Mr. Ormsby-Gore's Mission to British Malaya.

At the request of the Secretary of State for the Colonies, the Right Honourable W. Ormsby-Gore, M.P., will pay a short visit to the Straits Settlements and the Malay States. He will be accompanied by Mr. G. H. Creasy, of the Colonial Office, and by Mr. E. M. H. Lloyd, Secretary of the Research Grants Committee of the Empire Marketing Board.

The principal object of Mr. Ormsby-Gore's visit will be to report on scientific and economic developments in British Malaya, and in particular on the progress of the medical, agricultural, veterinary, forestry, and education departments.

Mr. Ormsby-Gore will leave England on March 15, and will arrive at Penang on April 6. He will leave Singapore on June 1, and will spend a fortnight in Ceylon on the return journey in order to visit the agricultural research stations in that island. He expects to be back in England during the first week in July. He hopes to pay a brief visit to the scientific and research stations at Buitenzorg in Java during the latter half of May.

Mr. Ormsby-Gore will confer with the Colonial Governments regarding the recommendations of the Colonial Office Conference of last year, and on matters arising out of the Imperial Agricultural Research Conference. His report, which will be analogous to that on his visit to British West Africa in 1926, will be presented to Parliament.

Presiding at the Shire Horse Society's luncheon, held on the first day of the Show this week, Sir Walter Gilbey said that from the large number of letters received from various firms, the Society knew that for economic reasons Shire horses were now being used in greater number than for years. There was an increasing recognition of the suitability of the horse, and especially the Shire horse, in comparison with motor and mechanical traffic. He remained strong in his advocacy that farmers should pay more attention to the breeding of horses and pedigree cattle.

The Royal Agricultural Society has received £7,000 from the Empire Marketing Board to enable it to administer quarantine stations for the examination of pedigree cattle for export at London, Glasgow and Liverpool. This will facilitate the resumption of the export of pedigree cattle, which national industry has been held up for months past owing to foot-and-mouth disease. The cattle will be examined and kept under observation for a period of three weeks. After the expiration of this time they can be sent abroad if healthy.

At the last meeting of the Essex Diseases of Animals Sub-Committee, it was reported that under the Tuberculosis Order of 1925 the total amount of compensation paid for the quarter ending Dec. 31 was £1,452 12s. 6d. Of this amount £1,090 4s. 4d. had been refunded by the Ministry leaving a debit balance of £363 8s. 2d. There had been recovered by salvage £257 13s. 6d., and the loss to the county was £105 14s. 8d. The number of animals slaughtered was 267.

We have just received a copy of the new Season's Catalogue for Game Foods, issued by Messrs. Entwistles Ltd., Vulcan Street Mills, Liverpool, the well-known Dog, Poultry and Game Food Manufacturers.

A section of the Booklet is devoted to their Dog Foods and it includes a list of testimonials received from prominent breeders and exhibitors. These letters pay a warm tribute to the value of this firm's Dog Food Specialities for pedigree and sporting dogs.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

"Humanitarianism" in West London.

To the Editor of The Veterinary Record.

Sir,—Recently-qualified men are not encouraged, at least by their contemporaries, to air their views in the professional journals. But Colonel Rainey's note on "Humanitarianism in East London in 1927" has fired me with a desire to call attention to the same subject in West London.

There is a flourishing branch of The People's Dispensary for Sick Animals of the Poor within a hundred yards of this address. I am occasionally honoured by a visit of one of their "poor" clients who, perhaps, is not satisfied with the rate of progress which the patient is making under the treatment of the P.D.S.A.—I say this in no boastful spirit! Those who have come to me during the last two years, after attending the Dispensary for periods of one or two months in some cases, have been, without one exception, people well able to pay a veterinary surgeon's fees. The P.D.S.A. will say that it is impossible for their men to determine each owner's financial position; that they have to judge by appearances. But the people to whom I refer do not even take the trouble to "dress the part" nor to send their servants or charwomen with the animals.

I will quote one example out of many: in the renowned Portobello Road (where any tradesman who has not made enough to retire after five or ten years is considered slow) I know of a great number of shop keepers who are regular visitors to the local branch of the P.D.S.A.

There is no doubt whatever that those who take their animals to this branch are under the impression that the man in the white coat is qualified or, more popularly, "a vet." In spite of any cynical remarks that may be made, one has to do a certain amount of work to secure the mystic symbol—M.R.C.V.S., and it is, to say the least of it, very annoying to find oneself put in the same category as these employees of the P.D.S.A. To the public we are all the same.

I hope Colonel Rainey will continue to draw attention to this matter, for, since the "indignation meeting," held some time ago, nothing, as far as I know, has been done towards curbing the activities of these people.—Yours faithfully, Kevin F. Quin.

131 Lancaster Road,
North Kensington, W.11.
February 13th, 1928.

The Abortoscope Method of Applying the Agglutination Test.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I have read Mr. Bevan's further letter on the above subject, and must once again ask for the courtesy of your columns to reply to a discussion that so far has revealed nothing new.

I did not "ADMIT" in the Summary to the original article "that the six which did not abort WERE infected." The opinion distinctly stated was "that they were PROBABLY infected." As no subsequent blood test was made on these six, after the abortoscope test prior to calving, it is impossible to give another opinion.

Mr. Bevan now complains that I now say: "What I consider was the most unsatisfactory result of the test was the fact that it failed to detect eight cows which did abort after the test, etc." This is what anyone who read the results through would also say and as Mr. Bevan quite overlooked this in his first reply, after overlooking the statement in the Summary already mentioned (and giving a long explanation which has been known for a very long time), I naturally drew his attention to it, hoping that some explanation might be forthcoming.

Whether or not these eight cattle were in such an early stage of infection that they would give no reaction at the time of the test, nobody can state definitely, but the percentage appears to be very high and I have certainly not had the same experience with the ordinary agglut nation test.

Mr. Bevan then proceeds to complain that no information was given as to whether the non-reactors were immediately removed from the farm or premises, and all risk of infection from reactors avoided. The answer to this question is in the affirmative, and was not mentioned in the article, because the article was to record the results of this method on one particular herd; it was not one on the subject of contagious abortion, nor was it one to decry the method adopted, but merely to state facts.

Long before this test was applied to the herd, the presence of contagious abortion had been proved beyond all doubt by several blood tests, and all reactors were taken away to another farm, and attended to by detailed men who did not come into contact with the others. All heifers were (and are still) kept at a third farm (nearly 20 miles distant), were inoculated against the disease, three calendar months before it was proposed to serve them, and they were (and are) not admitted to the herd until after they had calved down. In-calf cows were also inoculated as they calved down and removed from the non-inoculated non-infected ones. After the abortoscope method had been applied to the pregnant dairy cattle, the reactors were removed from the non-reactors.

I am glad to say that the disease in this herd has now been definitely stopped.

It is a matter of regret (as stated in my original article) that a further blood test was not made on the six which reacted to the abortoscope but went full term, and on the eight that did not react and which aborted, but the owner declined the expense.

I refrained from passing any judgment on this method for this reason. I had a little time previously reported very favourably on it in a short note in the *Veterinary Journal*.

I am perfectly aware of all the points that Mr. Bevan has brought forward, having had experience in this work for some years now, and I assisted at one of the very first blood tests carried out in general practice in this country, and with inoculation.

In "crossing swords" with Mr. Bevan, I do so in a perfectly friendly way and will conclude by saying: "di il vero e affronterai il diavolo."—Yours faithfully, J. F. D. TUTT, M.R.C.V.S.

1 St. Cross Road,
Winchester.
February 20th, 1928.

AN OPEN LETTER TO THE VETERINARY PROFESSION IN THE BRITISH ISLES.

THE following letter was addressed to a large proportion of Veterinary Surgeons resident in Great Britain and Ireland:

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Dear Sir,

There is little doubt that the new edition of

Hutyra & Marek's "Special Pathology"

would, but for its high cost (£5-5-0), be on the shelves of every veterinary practitioner, for (in the words of the *Veterinary Journal*), "No book has ever been written with such authority on animal diseases in any language." In order, therefore, to enable as many veterinary surgeons as possible to possess this book *and* to ease the incidence of its cost of purchase, we have decided to make this

SPECIAL OFFER.

The set of three volumes will be delivered on receipt of your order and cheque for a first payment of 30/-, or by post office C.O.D. service against a payment of a like amount, the balance being payable in two quarterly instalments of 40/- each.

Kindly note that no interest is charged on these instalments, the only cost to you being 5/- to cover carriage and packing and book-keeping expenses.

If you accept this offer, please return this letter, endorsed on the back with the words "Please supply" and your name and address, and state whether cheque is enclosed or the goods are to be sent C.O.D.

Yours faithfully,
BAILLIÈRE, TINDALL & COX.

❀ ❀ ❀

We repeat this letter here in case it either failed to reach any Veterinary Surgeon, or has been overlooked by him.

THE OFFER IS STILL OPEN!

Baillière, Tindall & Cox,

7 and 8 Henrietta Street, Covent Garden, London, W.C.2.